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SOURCES OF HEALTH INFORMATION AMONG CHINESE IMMIGRANTS TO THE PACIFIC NORTHWEST

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Abstract

Background—Chinese immigrants to North America experience cancer-related health disparities and underutilize preventive care. Little is known about Chinese immigrants' sources of health information.

Methods—A population-based survey of Chinese immigrants was conducted in Vancouver, British Columbia and Seattle, Washington.

Results—The study group included 899 individuals. Less than three-quarters of the respondents reported receiving health information from healthcare providers and only a minority used the Internet as a source of health information. We found significant differences between the sources of health information in Seattle and Vancouver.

Conclusions—Health educators should consider available media outlets as well as the characteristics of a target community when planning intervention programs for Chinese immigrants.

Introduction

Considerable efforts and resources are dedicated to developing and disseminating health information on a wide variety of topics. However, there is an important distinction between making health information available and making it accessible (1). While there is indeed a magnitude of health information available, evidence suggests that many people are not able to access, understand, and apply health information (1,2). One 2001 survey of United States (U.S.) households found that nearly two-thirds (62%) of adults do not seek health information from any source other than their doctor (3). Another report, by the Institute of Medicine, documents that nearly one-half (47%) of U.S. adults have difficulty understanding and utilizing health information, and those who find it most difficult to obtain health information are significantly more likely to report higher rates of hospitalization and lower use of preventive services (4).

Asians are one of the fastest growing populations in both Canada and the U.S., and Census data indicate that Chinese are the largest Asian subgroup with approximately 2,900,000 Chinese in America and almost 1,100,000 Chinese in Canada (5,6). The majority of Asians in

North America are foreign-born (67% of Asian Americans and 51% of Asian Canadians) (5, 6). Recent Canadian English language proficiency data are not available to the general public. However, over one-third (37%) of Asian Americans have limited English proficiency (i.e., do not speak English very well or fluently) (6).

According to a report from the U.S. Department of Health and Human Services, while the leading cause of death among all Americans is heart disease, it is cancer for Asian Americans (7). In addition, Sheth and colleagues demonstrated that the leading cause of death for Chinese adults in Canada is cancer (8). In North America, Asians have higher incidence rates of certain types of cancers (e.g., liver cancer) than any other racial/ethnic group (9,10). Despite these facts, foreign born Chinese Americans and Canadians underutilize cancer screening tests (e.g., Pap tests and mammography) and demonstrate low levels of knowledge about cancer prevention (e.g., routes of hepatitis B virus infection) (11–15).

Clearly, intervention programs are needed to reduce cancer-related health disparities experienced by Chinese in Canada and the U.S. The development of effective health education campaigns requires a thorough understanding of the target community's social and environmental characteristics (16,17). There is little information about the sources of health information that are commonly used by the fast-growing Chinese immigrant population in North America. We conducted community-based surveys of Chinese adults in Seattle, Washington and Vancouver, British Columbia during 2005. This brief report describes sources of health information used by Chinese immigrants in these geographic areas of Canada and the U.S.

Materials and Methods

Study Settings

Census data indicate that Seattle has approximately 22,800 Chinese residents (4% of the population) and Vancouver has over 342,600 Chinese residents (17% of the population) (5, 6). Chinese Community Coalitions in Seattle and Vancouver provided our research team advice on survey content and administration. The Institutional Review Board at the Fred Hutchinson Cancer Research Center and the Research Ethics Board at the University of British Columbia both approved the survey instrument and study protocols.

Sampling Method

Our survey sample was drawn from neighborhoods with relatively high proportions of Chinese residents, identified by Seattle zip codes and Vancouver postal codes. Chinese households were identified in these neighborhoods by applying a list of previously validated Chinese last names to electronic versions of the Seattle and Vancouver telephone books (18).

Household Recruitment

Prior to an interviewer approaching a home, households were sent an introductory mailing that included a letter in traditional Chinese, simplified Chinese, and English, as well as a small participation incentive (a culturally appropriate calendar). The letter described the project goals, how the household was selected, and who was eligible to participate. Individuals were eligible for participation in the study if they were ethnic Chinese; spoke Cantonese, Mandarin or English; and were between the ages of 20 and 64 years. Each household was assigned to either a male-interview group where we asked to speak to a man in the household or to a female-interview group where we asked to speak to a woman in the household. Male interviewers interviewed men and female interviewers interviewed women.

Trilingual (Cantonese, Mandarin, and English) interviewers administered all surveys in person. This method of survey administration was chosen over other methods because it is believed to be the most effective way of obtaining high survey participation rates from racial/ethnic minority groups (19). If a household included 2 or more eligible men or women, we asked to speak to the man or woman with the most recent birthday. Participants were offered a \$20.00 incentive for participation.

Survey Content

Our questionnaire was developed in English, double-forward translated into Chinese (Cantonese and Mandarin), reconciled, and pre-tested (20). Respondents were asked a series of questions about their demographic characteristics, including gender, year of birth, marital status, level of education, years in North America, and English proficiency.

Participants were read the following statement, “There are many ways people can get information about health and healthcare. As I read each question, please tell me if you get information about health and healthcare in this way.” Respondents were then asked if they get information by: 1) reading Chinese-language newspapers and/or magazines; 2) reading English-language newspapers and/or magazines; 3) listening to Chinese-language radio programs; 4) listening to English-language radio programs; 5) watching Chinese-language television programs; 6) watching English-language television programs; 7) using Chinese-language Internet sites; 8) using English-language Internet sites; 9) talking to friends; 10) talking to people at religious gatherings; 11) talking to people at community functions; 12) talking to doctors and/or nurses.

Data Analysis

Chi-square tests were used to examine differences in the use of each source of health information among demographic subgroups (21). Multivariable logistic regression models were used to examine the conditional associations between health information seeking behavior and demographic characteristics after adjusting for each other. Specifically, the demographic characteristics examined include city of residence (Seattle, Vancouver), gender (female, male), age (20 – 44, 45 – 64) marital status (unmarried, married), years of education (less than 12 years, 12 or more years), years in North America (less than 20 years, 20 or more years), and English fluency (fluently or well, less than well).

Because respondents could report multiple information sources, a separate logistic model was built for each information source. Adjusted odds ratio (OR) estimates and the associated 95% confidence intervals (CI) and p-values for the associations between the use of each source of health information and demographic characteristics were obtained from the logistic regression analysis by the standard large-sample statistical inference methods (22). Associations with two-sided p-values of 0.05 or less were considered statistically significant.

Results

Survey Response

Our survey response rate has been reported in detail elsewhere (12,23). Briefly, the survey cooperation rate (i.e., response among reachable and eligible households) was 59% (58% in Seattle and 59% in Vancouver) and 987 individuals (436 in Seattle and 551 in Vancouver) completed the survey. Because this analysis focused on Chinese immigrants in Canada and the U.S., American and Canadian-born respondents were excluded. Therefore, the study sample for this analysis included 899 respondents born outside of North America (395 Seattle respondents and 504 Vancouver respondents) of whom 606 (67%) completed the survey in Cantonese, 208 (23%) in Mandarin and 85 (9%) in English.

Study Group Characteristics

The demographic characteristics of the study group are given in Table 1. Fifty-three percent of the Seattle participants and 57% of the Vancouver participants were female. About two-thirds of the survey respondents were over 44 years of age, had 12 years of education or more, had been in North America for less than 20 years, and reported not speaking English well or at all. There were no statistically significant differences in the demographic characteristics of the respondents in the 2 cities.

Sources of Health Information

Tables 2, 4, and 6 summarize the sources of health information reported by Seattle and Vancouver survey respondents, as well as by other demographic subgroups. The following 4 sources were reported by over one-half of our participants in each city: Chinese language newspapers, Chinese language television, friends, and doctors and nurses. In addition, English language television and Chinese language radio were commonly reported in Seattle and Vancouver, respectively. Significant differences were found between cities in the proportion of participants reporting each of these sources.

Chinese and English Language Media

Adjusted OR estimates and 95% CI for the associations between the use of Chinese and English language media-based sources of health information and demographic characteristics are presented in Tables 3 and 5, respectively. We found that the use of Chinese language media sources was correlated with city of residence. Specifically, Vancouver residents were significantly more likely to report getting health information from Chinese language television, newspapers, and radio. In contrast, Seattle residents were significantly more likely to report getting health information from English language television. As would be expected, the use of Chinese and English language media was also correlated with English language fluency.

Social Networks and Health Care Providers

Table 7 gives OR estimates and 95% CI for the use of social networks and health care providers as sources of health information by demographic characteristics of the respondents. Seattle residents were more likely to report getting health information from healthcare providers and less likely to report getting health information from friends than Vancouver residents. In addition, women were more likely than men to report getting health information from friends and health care providers.

Discussion

Racial and ethnic differences in the use of health information resources have been documented in other studies (16,24–26). The little data available about the health information seeking behaviors of Asian immigrants to North America shows important differences among Asian sub-groups. For example, in a study with cancer patients, Kakai and colleagues found differences in the preferred sources of information between Caucasian, Japanese, and other Asian patients. Specifically, Caucasian patients relied on information from medical journals, telephone information services, and the Internet, Japanese patients relied on information from television, newspapers, books, magazines, and complementary and alternative medicine providers, and other Asians relied on interpersonal communication with physicians, members of their social networks, and other cancer patients (26).

Asian-language media has been shown to be an important health information source among other ethnic Asian groups (27,28). We found that Chinese language newspapers were an important source of health information in both Seattle and Vancouver. However, we also found

differences between Seattle and Vancouver in the use of Chinese language media. Specifically, Vancouver residents were significantly more likely to report the use of Chinese language newspapers, radio, and television programming than Seattle residents. This may reflect the considerably greater availability of Chinese language media in Vancouver. There is only 1 Chinese language television station in Seattle (and it requires a specialized cable package) and no Chinese language radio station or daily Chinese language newspaper. In contrast there are 3 Chinese language television stations (1 of which is available with the most basic cable package), 2 Chinese language radio stations, and 3 daily Chinese language newspapers in Vancouver.

It is of note that 51 participants in Seattle reported receiving health information from Chinese language radio stations even though there is no Chinese language radio station available in the Seattle area. We believe there is a subgroup of participants in both Seattle and Vancouver who frequently travel to Asia and are exposed to Chinese language media while traveling.

We looked at the use of Chinese and English language Internet sites and found that only a minority of our respondents in either study city reported the Internet as a health information source. The Internet was less commonly reported in both Seattle and Vancouver than most media sources and healthcare providers. In contrast, the 2002 – 2003 Health Information National Trends Survey of over 6000 adults in the U.S. found that the Internet was second only to physicians as a health information source in the general population (29).

Numerous studies have reported that doctors and nurses are a primary source of health information in both the general population and non-Asian minority populations (3,16,24,29, 30). In our study, only 75% of Chinese immigrants in Seattle and 67% of Chinese immigrants in Vancouver reported doctors and nurses as a health information source. Similar findings have been reported from other studies of Asian immigrant populations (26–28). The Commonwealth Fund has reported that Asian Americans are less likely to feel that doctors understand their background and values than all other racial and ethnic groups with only 45% of Asian Americans reporting being “very satisfied” with their health care (31). If Chinese immigrants are dissatisfied with the care they receive from doctors and nurses, they might be disinclined to trust the healthcare system or to depend on providers as a source of health information (32,33).

Radio program listeners can call in (which allows direct interaction with the audience), newspapers are useful for illustrating an idea with both text and visual elements, and the Internet gives users searching and navigational capabilities. Information about preferences for particular media formats by different subgroups could be used to target tailored cancer-related interventions or education for Chinese immigrants.

Our study has several important strengths. We conducted the same survey in 2 cities, had a large study sample, used population-based sampling methods, administered face-to-face surveys in the language of each participant's choice, and had a relatively good cooperation rate. However, our study also has several limitations. Specifically, households were not eligible for the survey if they did not have a listed telephone number; individuals were excluded if they did not speak Cantonese, Mandarin or English; and a proportion of the households were unreachable or refused to participate.

Conclusion

Chinese immigrants experience cancer-related health disparities and underutilize preventive care. Therefore, it is important to make culturally tailored and linguistically appropriate health information accessible to this population. We found that Chinese immigrants to North America exhibit health information seeking behaviors that are quite different from the general

population. Further, we found significant differences between the sources of health information used by Chinese immigrants in Seattle and Vancouver, as well as significant differences between demographic sub-groups. Health education specialists should consider the availability of Chinese-language media outlets, as well as the demographic characteristics of a target community, when planning cancer education and prevention intervention programs for Chinese immigrants.

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Table 1

Demographic Characteristics

Variable	Seattle (N=395)		Vancouver (N=504)	
	N	%	N	%
Gender				
Male	184	47	217	43
Female	211	53	287	57
Age (years)				
20 – 44	146	37	196	39
45 – 64	245	63	304	61
Marital status				
Married	343	87	425	84
Not married	51	13	78	16
Education (years)				
<12	150	38	166	33
≥12	245	62	334	67
Years in North America				
<20	248	63	313	62
≥20	146	37	188	38
English proficiency				
Speaks fluently or well	130	33	170	34
Does not speak well or at all	265	67	333	66

Missing values (Seattle, Vancouver): gender=0,0; age=4,4; marital status=1,1; education=0,4; years in North America=1,3; English proficiency=0,1.

Table 2

Use of Chinese Language Media by Demographics

Variable	Newspapers N (%)	Radio N (%)	Television N (%)	Internet N (%)
City				
Seattle	248 (63) **	51 (13) ***	206 (52) ***	106 (27)
Vancouver	368 (73)	370 (73)	392 (78)	150 (30)
Gender				
Male	260 (65) *	174 (44)	242 (61) ***	133 (33) **
Female	356 (71)	247 (50)	356 (72)	123 (25)
Age (years)				
20 – 44	200 (58) ***	149 (44)	205 (60) ***	137 (40) ***
45 – 64	411 (75)	267 (49)	388 (71)	117 (21)
Marital status				
Married	544 (71) ***	370 (48) *	525 (69) **	213 (28)
Not married	71 (55)	50 (39)	72 (56)	43 (33)
Education (years)				
<12	229 (73) *	170 (54) **	236 (75) ***	43 (14) ***
≥12	383 (66)	247 (43)	358 (62)	213 (37)
Years in North America				
<20	407 (73) ***	272 (49)	389 (69) *	204 (36) ***
≥20	206 (62)	147 (44)	206 (62)	50 (15)
English proficiency				
Speaks fluently or well	154 (52) ***	100 (33) ***	150 (50) ***	101 (34) *
Does not speak well or at all	462 (77)	320 (54)	447 (75)	155 (26)

*
p<0.05**
p<0.01***
p<0.001

Table 3

Adjusted Odds Ratio Estimates (OR) and 95% Confidence Intervals (CI) for Use of Chinese Language Media by Demographics

Variable	Newspapers OR (95% CI)	Radio OR (95% CI)	Television OR (95% CI)	Internet OR (95% CI)
Vancouver	1.7 (1.2, 2.3)	27.3 (18.2, 41.0)	3.8 (2.8, 5.2)	1.1 (0.8, 1.5)
Male gender	0.8 (0.6, 1.1)	0.9 (0.6, 1.2)	0.6 (0.5, 0.9)	1.5 (1.1, 2.1)
Age 45 – 64 years	2.2 (1.6, 3.1)	1.2 (0.8, 1.8)	1.5 (1.1, 2.1)	0.6 (0.4, 0.8)
Married	1.6 (1.1, 2.5)	1.6 (0.96, 2.6)	1.4 (0.9, 2.1)	1.2 (0.8, 2.0)
≥ 12 years education	1.5 (1.01, 2.1)	0.6 (0.4, 0.9)	0.8 (0.6, 1.2)	3.9 (2.6, 5.8)
≥ 20 years in North America	0.6 (0.4, 0.8)	0.9 (0.6, 1.3)	0.8 (0.6, 1.1)	0.3 (0.2, 0.4)
Speaks English fluently or well	0.4 (0.2, 0.5)	0.3 (0.2, 0.5)	0.4 (0.3, 0.6)	1.1 (0.7, 1.5)

Bold if $p < 0.05$

Reference groups - Seattle, female gender, age 20 – 44 years, not married, <12 years education, <20 years in North America, does not speak English well or at all

Table 4

Use of English Language Media by Demographics

Variable	Newspapers N (%)	Radio N (%)	Television N (%)	Internet N (%)
City				
Seattle	125 (32)	107 (27)	206 (52) **	128 (33)
Vancouver	191 (38)	145 (29)	216 (43)	162 (32)
Gender				
Male	151 (38)	123 (31)	194 (49)	154 (39) ***
Female	165 (33)	129 (26)	228 (46)	136 (27)
Age (years)				
20 – 44	144 (42) ***	105 (31)	186 (54) ***	148 (43) ***
45 – 64	165 (30)	142 (26)	230 (42)	136 (25)
Marital status				
Married	254 (33) **	207 (27)	348 (45) *	224 (29) ***
Not married	60 (47)	44 (34)	72 (56)	64 (50)
Education (years)				
<12	28 (9) ***	33 (10) ***	79 (25) ***	23 (7) ***
≥12	286 (49)	217 (38)	340 (59)	266 (46)
Years in North America				
<20	158 (28) ***	112 (20) ***	225 (40) ***	163 (29) *
≥20	154 (46)	137 (41)	194 (58)	123 (37)
English proficiency				
Speaks fluently or well	213 (71) ***	149 (50) ***	217 (73) ***	195 (65) ***
Does not speak well or at all	103 (17)	103 (17)	205 (34)	95 (16)

*
p<0.05**
p<0.01***
p<0.001

Table 5

Adjusted Odds Ratio Estimates (OR) and 95% Confidence Intervals (CI) for Use of English Language Media by Demographics

Variable	Newspapers OR (95% CI)	Radio OR (95% CI)	Television OR (95% CI)	Internet OR (95% CI)
Vancouver	1.5 (1.04, 2.1)	1.1 (0.8, 1.6)	0.6 (0.4, 0.8)	0.9 (0.7, 1.3)
Male gender	0.96 (0.7, 1.4)	1.1 (0.8, 1.5)	0.9 (0.7, 1.2)	1.5 (1.1, 2.1)
Age 45 – 64 years	0.7 (0.4, 0.9)	0.8 (0.5, 1.1)	0.6 (0.4, 0.8)	0.5 (0.4, 0.8)
Married	1.2 (0.8, 2.0)	1.1 (0.7, 1.8)	1.1 (0.7, 1.7)	0.8 (0.5, 1.3)
≥ 12 years education	5.2 (3.3, 8.3)	3.4 (2.2, 5.3)	2.9 (2.1, 4.1)	5.3 (3.3, 8.7)
≥ 20 years in North America	2.1 (1.4, 3.0)	2.8 (2.0, 4.0)	2.1 (1.5, 2.9)	1.2 (0.8, 1.7)
Speaks English fluently or well	6.6 (4.6, 9.5)	2.7 (1.9, 3.8)	3.0 (2.1, 4.2)	5.4 (3.7, 7.7)

Bold if $p < 0.05$

Reference groups - Seattle, female gender, age 20 – 44 years, not married, <12 years education, <20 years in North America, does not speak English well or at all

Table 6

Use of Social Networks and Health Care Providers by Demographics

Variable	Community functions N (%)	Religious gatherings N (%)	Friends N (%)	Doctors and nurses N (%)
City				
Seattle	98 (25)	82 (21)	270 (69)**	295 (75)*
Vancouver	101 (20)	85 (17)	391 (78)	339 (67)
Gender				
Male	79 (20)	70 (18)	252 (63)***	250 (63)***
Female	120 (24)	97 (19)	409 (82)	384 (77)
Age (years)				
20 – 44	69 (20)	62 (18)	252 (74)	260 (76)**
45 – 64	126 (23)	103 (19)	404 (74)	367 (67)
Marital status				
Married	175 (23)	144 (19)	574 (75)*	539 (70)
Not married	23 (18)	23 (18)	86 (67)	93 (72)
Education (years)				
<12	56 (18)*	39 (12)***	213 (67)**	190 (60)***
≥12	143 (25)	128 (22)	447 (77)	442 (76)
Years in North America				
<20	112 (20)*	100 (18)	417 (75)	389 (69)
≥20	87 (26)	67 (20)	241 (72)	241 (72)
English proficiency				
Speaks fluently or well	74 (25)	66 (22)	233 (78)*	235 (79)***
Does not speak well or at all	125 (21)	101 (17)	427 (72)	398 (67)

*
p<0.05**
p<0.01***
p<0.001

Table 7

Adjusted Odds Ratio Estimates (OR) and 95% Confidence Intervals (CI) for Use of Social Networks and Health Care Providers by Demographics

Variable	Community functions OR (95% CI)	Religious gatherings OR (95% CI)	Friends OR (95% CI)	Doctors and nurses OR (95% CI)
Vancouver	0.8 (0.6, 1.04)	0.8 (0.6, 1.1)	1.7 (1.2, 2.3)	0.6 (0.5, 0.9)
Male gender	0.8 (0.6, 1.1)	0.9 (0.6, 1.2)	0.3 (0.3, 0.5)	0.4 (0.3, 0.6)
Age 45 – 64 years	1.1 (0.8, 1.6)	1.1 (0.7, 1.6)	1.1 (0.8, 1.5)	0.6 (0.5, 0.9)
Married	1.5 (0.9, 2.6)	1.2 (0.7, 2.1)	1.9 (1.2, 2.9)	1.3 (0.8, 2.1)
≥ 12 years education	1.6 (1.1, 2.3)	2.1 (1.3, 3.1)	1.8 (1.3, 2.6)	2.1 (1.5, 3.0)
≥ 20 years in North America	1.4 (0.95, 1.9)	1.1 (0.8, 1.6)	0.8 (0.6, 1.2)	1.2 (0.9, 1.7)
Speaks English fluently or well	1.1 (0.7, 1.5)	1.1 (0.8, 1.7)	1.4 (0.9, 2.1)	1.4 (0.9, 2.0)

Bold if $p < 0.05$

Reference groups - Seattle, female gender, age 20 – 44 years, not married, <12 years education, <20 years in North America, does not speak English well or at all